California Department of Health Services
Drinking Water Field Operations Branch

Community Water Systems - Assessment of Historical Radionuclide Monitoring

Purpose of this form: To determine whether radionuclide monitoring frequency may be reduced on the basis of historical data, as allowed under the new Federal and draft State Radionuclide Rules.

Complete a separate form for each active source serving your water system.
Submit to your DWFOB district field office prior to implementing a reduced monitoring frequency.

Water System Name: _____ **Water System No.:** _____

Source Name: _____ **Primary Station Code:** _____

Step 1: Has Historical Monitoring for Gross Alpha Been Completed?

Have four consecutive quarters of Gross Alpha monitoring been completed for this source since **January 1, 2001**?

☐ **Yes** - monitoring completed. Please fill out **Table 1** below.

☐ **No** - The system must complete four consecutive quarters[1] of Gross Alpha monitoring for this source by December 31, 2007.

TABLE 1 - Gross Alpha (GA) Data

Column 1	Column 2	Column 3	Column 4	Column 5 (to be used in Steps 3 & 4)
Date of Sample	GA Result[2] (pCi/L)	CE[3]	Multiply $0.84 \times CE$ [4]	GA Result + ($0.84 \times CE$) *(Sum of values in Columns 2 and 4)*
Average/composite				

Step 2: Determination of Reduced Monitoring Frequency for Gross Alpha[5]

The reduced monitoring frequency is based on the average/composite shown in Table 1, Column 2. Choose the appropriate frequency below.

☐ **One sample every nine years** if the average/composite of the monitoring results is below 3 pCi/L

☐ **One sample every six years** if the average/composite of the monitoring results is greater than or equal to 3 pCi/L but less than or equal to 7.5 pCi/L

☐ **One sample every three years** if the average/composite of the monitoring results is greater than 7.5 pCi/L but less than or equal to 15 pCi/L

☐ **Quarterly** if the average/composite of the monitoring results is greater than 15 pCi/L

[1] For Gross Alpha, Uranium, Radium-226 and Radium-228, and Total Radium, the Department may waive the final two quarters of initial monitoring if the results from the first two quarters are below the DLR(s).
[2] For negative values and values less than the DLR (i.e. ND) assign a value of zero (0).
[3] CE = Counting Error.
[4] $0.84 \times CE$ is the 95% one-tailed confidence interval for the counting error (1.65/1.96 = 0.84)
[5] Use the average of the four Gross Alpha analysis results in Table 1 Column 2 to determine the reduced monitoring frequency for this source.

Step 3: Can the Gross Alpha Measurements be Used to Satisfy the Monitoring Requirements for Uranium and Radium-226?

The Gross Alpha measurement may be substituted for Radium-226 and Uranium analyses if the four-quarter average/composite of the *Gross Alpha result plus* $0.84 \times CE$ [4] does not exceed **5 pCi/L** (See Table 1, Column 5). Please answer the following question:

Is Gross Alpha particle activity $\leq$ 5 pCi/L, based on the four-quarter average/composite of $GA + (0.84 \times CE)$ from Table 1?

☐ **Yes - No additional monitoring is required except for Radium-228. Skip to Step 7**

☐ **No** - Go to Step 4.

Step 4: Has Historical Monitoring for Uranium Been Completed?

If the Gross Alpha particle activity is > 5 pCi/L, based on the four-quarter average or composite of $GA + (0.84 \times CE)$ from Table 1, then **monitoring for Uranium is required**.

Have four consecutive quarters of Uranium monitoring been completed for this source since **January 1, 2001**?

☐ **Yes** - monitoring completed. Please fill out **Table 2** below.

☐ No - The system must complete four consecutive quarters[1] of Uranium monitoring for this source by December 31, 2007.

Table 2 - Uranium Data

Column 1	Column 2	Column 3	Column 4
Sample Date	Uranium Result (pCi/L)	GA Result + ($0.84 \times CE$) *(Copy values from Table 1 Column 5)*	[GA + ($0.84 \times CE$)] - Uranium *(To calculate the GA minus Uranium value the analysis results for GA and Uranium must come from the same sample)*
Average/composite			

Step 5: Determination of Reduced Monitoring Frequency for Uranium[6]

The reduced monitoring frequency is based on the average/composite shown in Table 2, Column 2. Choose the appropriate frequency below.

☐ **One sample every nine years** if the average/composite of the monitoring results is below 1 pCi/L

☐ **One sample every six years** if the average/composite of the monitoring results is greater than or equal to 1 pCi/L but less than or equal to 10 pCi/L.

☐ **One sample every three years** if the average/composite of the monitoring results is greater than 10 pCi/L but less than or equal to 20 pCi/L

☐ **Quarterly** if the average/composite of the monitoring results is greater than 20 pCi/L

[6] Use the average of the four Uranium analysis results or the result of the composited sample in Table 2 Column 2 to determine the reduced monitoring frequency for this source.

Step 6: Has Historical Monitoring for Radium-226 Been Completed?

Is the Gross Alpha particle activity minus Uranium **≤ 5 pCi/L**, based on the four-quarter average/composite of $[GA + (0.84 \times CE)]$ - *Uranium* (from Table 2, fourth column)?

☐ **Yes - No additional monitoring is required except for Radium-228. Skip to Step 7**

☐ **No - Monitoring for Radium-226 is Required**. Please answer the following question:

Have four consecutive quarters of Radium-226 monitoring been completed for this source since **January 1, 2001**?

☐ **Yes** - monitoring completed. Please fill out **Table 3** below.

☐ **No** - The system must complete four consecutive quarters[1] of Radium-226 monitoring for this source by December 31, 2007.

Table 3 - Radium-226 Data

Sample Date	Radium-226 Result (pCi/L)

Step 7: Initial Monitoring for Radium-228

- All community water systems must complete the initial monitoring requirement for Radium-228
- The system must complete four consecutive quarters[1] of Radium-228 monitoring for this source by December 31, 2007.

Note: After the initial monitoring for Radium-228 is completed, water systems will only need to monitor for Radium-226 and Radium-228 if the measured Gross Alpha particle activity minus Uranium exceeds 5 pCi/L. The reduced monitoring frequency for Radium-226 and Radium-228 would be based on the combined Radium value (i.e. Radium-226 + Radium-228), and would be determined when the analysis results for Radium-228 become available.

Name of Water System Representative _____ Date _____

Signature _____ Phone _____